

Listing of Claims

The following is a copy of Applicants' claims:

1. (Original) A system for detecting a respiration signal of at least one subject in a target area, comprising:
 - a scanning antenna to transmit a microwave signal across the target area, wherein the scanning antenna receives a reflected microwave signal from the at least one subject;
 - a control system to track the position of the scanning antenna as the scanning antenna transmits the microwave signal;
 - a signal processing system to detect the respiration signal of the at least one subject from the reflected microwave signal that is received by the scanning antenna.
2. (Original) The system of claim 1, further comprising: a Doppler radar module to generate the microwave signal.
3. (Original) The system of claim 2, wherein the Doppler radar module operates at 10.525 GHz.
4. (Original) The system of claim 1, further comprising: radar absorbing material to restrict the area that the scanning antenna transmits.
5. (Original) The system of claim 4, the control system further comprising: a digital shaft encoder to provide positional information of the scanning antenna.
6. (Original) The system of claim 1, further comprising: a display device to display a graphical plot of the reflected microwave signal.

7. (Original) The system of claim 6, wherein the control system samples the reflected signal at discrete positions of the scanning antenna and compiles the sampled data to produce the graphical plot.

8. (Original) The system of claim 6, wherein the control system samples the reflected signal at one discrete position of the scanning antenna and compiles the sampled data to produce the graphical plot.

9. (Original) The system of claim 6, wherein the position along the horizontal scanning axis of the at least one subject is ascertained from the graphical plot.

10. (Original) The system of claim 1, wherein one subject is positioned behind a reflective surface in the target area.

11. (Original) The system of claim 1, wherein two subjects are positioned behind a reflective surface in the target area and the respiration signature of each subject is detected.

12. (Original) The system of claim 1, wherein the scanning antenna is being operated in a hand held mode.

13. (Original) A system for detecting a respiration signal of at least one subject in a target area, comprising:

means for transmitting a microwave signal across the target area in a horizontal scanning motion;

means for receiving a reflected microwave signal from the target area;

means for tracking the position of the means for transmitting as the means for transmitting transmits the microwave signal;

means for detecting the respiration signal of the at least one subject, wherein the reflected microwave signal was from the at least one subject.

14. (Original) The system of claim 13, wherein the means for transmitting operates at 10.525 GHz.

15. (Original) The system of claim 13, further comprising: means for displaying a graphical plot of the reflected microwave signal.

16. (Original) The system of claim 15, further comprising:

means for sampling the received reflected microwave signal at at least one discrete position of the means for transmitting;

and means for compiling sampled data to produce the graphical plot.

17. (Original) The system of claim 16, wherein the means for detecting processes sampled data from the received reflected microwave signal to remove an undesired signal caused by self-induced motion of the system.

18. (Original) The system of claim 17, wherein the means for detecting processes the sampled data by subtracting data having the undesired signal from data having the undesired signal and the respiration signal.

19. (Original) The system of claim 16, wherein the means for tracking samples the reflected signal at only one discrete position.

20. (Original) The system of claim 15, wherein the position along the horizontal scanning axis of the at least one subject is ascertained from the graphical plot.

21. (Original) The system of claim 13, wherein one subject is positioned behind a reflective surface in the target area.

22. (Original) The system of claim 13, wherein two subjects are positioned behind a reflective surface in the target area and the respiration signature of each subject is detected.

23. (Original) The system of claim 13, wherein the means for transmitting is being operated in a hand held mode.

24. (Original) A method for detecting a respiration signal of at least one subject in a target area, comprising the steps of:

transmitting a microwave signal across the target area along a horizontal scanning axis;

receiving a phase modulated reflected microwave signal from the target area;

tracking the position at which the microwave signal is transmitted along the horizontal scanning axis;

detecting the phase shifted respiration signal of the at least one subject, wherein the reflected microwave signal was from the at least one subject.

25. (Original) The method of claim 24, wherein the frequency of the microwave signal is 10.525 GHz.

26. (Original) The method of claim 24, further comprising the step of: displaying a graphical plot of the reflected microwave signal.

27. (Original) The method of claim 26, further comprising the steps of:
sampling the received reflected signal at at least one discrete position along the horizontal scanning axis;
and compiling processed sampled data to produce the graphical plot.

28. (Original) The method of claim 27, further comprising the step of: processing the sampled data by performing the mathematical equivalent of subtraction of scanner positions containing only hand motion induced clutter data from scanner positions containing both the hand motion and the respiration signal.

29. (Original) The method of claim 26, wherein the received reflected signal is sampled at only one discrete position.

30. (Original) The method of claim 26, further comprising the step of:
ascertaining the position along the horizontal scanning axis of at least one subject from the graphical plot.

31. (Original) The method of claim 24, wherein one subject is positioned behind a reflective surface in the target area.

32. (Original) The method of claim 24, wherein two subjects are positioned behind a reflective surface in the target area and the respiration signature of each subject is detected.

33. (Original) The method of claim 24, wherein the transmitting step is being performed in a hand held mode.